

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.-3. (Canceled)

4. (Currently Amended) A mobile communication system comprising:

a transmitter that performs transmission of data at a transmission rate of $2400 \times (n+1)$ (n: natural number) [bps]; and

a receiver that receives data transmitted from the transmitter, characterized in that;

the transmitter includes:

encoding means for encoding predetermined data to generate a binary signal;

symbol converting means for sequentially converting a binary signal generated by the encoding means into a $2^{(n+1)}$ -ary symbol, which includes $(2^{(n+1)}+1-2k)$ ($1 \leq k \leq 2^{(n+1)}$) values, (n+1) bits at a time and outputting the symbol, wherein when a symbol of $+(2^{(n+1)}-1)$ and a symbol of $-(2^{(n+1)}-1)$ are alternately and repeatedly outputted from the symbol converting means, a frequency shift of the output signal from the frequency shifting and modulating means is set to take a value in a range of ± 0.822 [kHz] to ± 0.952 [kHz];

a first base band filter that blocks an unnecessary frequency component of a symbol inputted from the symbol converting means and outputs a waveform signal; and

frequency shifting and modulating (FM) means for transmitting a signal, which is obtained by shifting to modulate a frequency according to a magnitude of an

amplitude of the waveform signal inputted from the first base band filter, to the receiver;
receiver;

the receiver includes:

demodulating means for demodulating the signal transmitted from the transmitter and received and outputting a $2^{(n+1)}$ -ary signal;

a second base band filter that blocks an unnecessary frequency component of the $2^{(n+1)}$ -ary signal outputted from the demodulating means and outputs the $2^{(n+1)}$ -ary signal;

binary signal converting means for sequentially converting a $2^{(n+1)}$ -ary signal inputted from the second base band filter into a binary signal of $(n+1)$ bits and outputting the binary signal; and

decoding means for decoding a binary signal inputted from the binary signal converting means and outputting the predetermined data[[, and]]

~~when a symbol of $+(2^{(n+1)}-1)$ and a symbol of $-(2^{(n+1)}-1)$ are alternately and repeatedly outputted from the symbol converting means, a frequency shift of a signal outputted from the frequency shifting and modulating means is set in a range of ± 0.822 [kHz] to ± 0.952 [kHz].~~

5. (Original) The mobile communication system according to claim 4, characterized in that the first and second base band filters are Nyquist filters.

6. (Original) The mobile communication system according to claim 4 or 5 characterized in that

the first base band filter includes a root raised cosine filter and a sinc filter,

the second base band filter includes a root raised cosine filter and a $1/\text{sinc}$ filter that has a characteristic opposite to that of the sinc filter, and

a nominal frequency shift of the symbol of $\pm(2^{(n+1)}-1)$ is set to a value $\pi/2\sqrt{2}$ times as large as a frequency shift of a signal outputted from the frequency shifting and modulating means.

7. (Original) The mobile communication system according to claim 4 or 5, characterized in that

the first and second base band filters include root raised cosine filters, and

the nominal frequency shift of the symbol of $\pm(2^{(n+1)}-1)$ is set to a value of $1/\sqrt{2}$ times as large as a frequency shift of a signal outputted from the frequency shifting and modulating means.

8. (Original) The mobile communication system according to claim 4 or 5, characterized in that

the first base band filter includes a raised cosine filter and a $1/\text{sinc}$ filter,

the second base band filter includes a sinc filter that has a characteristic opposite to that of the $1/\text{sinc}$ filter, and

the nominal frequency shift of the symbol of $\pm(2^{(n+1)}-1)$ is set to a value $2/\pi$ times as large as a frequency shift of a signal outputted from the frequency shifting and modulating means.

9.-10. (Canceled)

11. (Previously Presented) A communication method in a mobile communication system including a transmitter that performs transmission of data at a transmission rate of $2400 \times (n+1)$ (n: natural number) [bps] and a receiver that receives data transmitted from the transmitter, characterized by comprising:

an encoding step of encoding predetermined data to generate a binary signal;

a symbol converting step of sequentially converting a binary signal generated by the encoding step into a $2^{(n+1)}$ -ary symbol, which includes $(2^{(n+1)}+1-2k)$ ($1 \leq k \leq 2^{(n+1)}$) values, $(n+1)$ bits at a time and outputting the symbol;

a step of blocking an unnecessary frequency component of a symbol inputted from the symbol converting step and outputting a waveform signal;

a frequency shifting and modulating step of transmitting a signal, which is obtained by shifting to modulate a frequency according to a magnitude of an amplitude of the waveform signal inputted from the first base band filter, to the receiver;

a demodulating step of demodulating the signal transmitted from the transmitter and received and outputting a $2^{(n+1)}$ -ary signal;

a step of blocking an unnecessary frequency component of the $2^{(n+1)}$ -ary signal outputted from the demodulating step and outputting the $2^{(n+1)}$ -ary signal;

a binary signal converting step of sequentially converting a $2^{(n+1)}$ -ary signal inputted into a binary signal of $(n+1)$ bits and outputting binary signal; and

a decoding step of decoding a binary signal inputted from the binary signal converting step and outputting the predetermined data, and in that

when a symbol of the $+(2^{(n+1)}-1)$ and a symbol of $-(2^{(n+1)}-1)$ are alternately and repeatedly outputted from the symbol converting step, a frequency shift of a signal outputted from the frequency shifting and modulating step is set to take a value in a range of $\pm 0.822[\text{kHz}]$ to $\pm 0.952[\text{kHz}]$.